

II

BISMUTH POLYNEURITIS

By MACDONALD CRITCHLEY, M.D., M.R.C.P.

As far as I am aware, no case has been recorded of peripheral neuritis resulting from the therapeutic injection of bismuth compounds. The following case is illustrative in this connection and emphasises the danger of bismuth medication when kidney insufficiency coexists.

Mrs. M. C., aged thirty-eight, came under observation for trouble with the right eye. Five weeks previously she was seized with sudden severe headache lasting forty-eight hours and associated with vomiting. On the third day she found on awakening that she was unable to raise the right eyelid; the headache, however, had disappeared.

Her previous health had been good except for some vague malaise, which was attributed to kidney trouble. There were two healthy children, but there had been one miscarriage.

Physical examination revealed a very pale woman of fair nourishment. Pupils normal in size and shape, reacting perfectly to light and on accommodation. Then there was an almost complete ptosis of the right eyelid, together with an internal strabismus of that eye. The fourth and sixth nerves on the right side were paralysed, and upward movement of the eyeball was limited. The left eye was normal. Examination of the fundi showed some pallor of the right disc, with evidence of myopic astigmatism. The arteries were bright, irregular in calibre, and indented the veins at the arterio-venous crossings. Some glistening dots were visible along the course of the vessels. Visual acuity: R.E. $\frac{3}{24}$; L.E. $\frac{6}{24}$. Fields of vision full. The other cranial nerves were normal.

No disorder of tone or motor power existed in the trunk or extremities; the sensory functions were normal.

All the tendon reflexes were present and equal on the two sides; plantar stimulation evoked a flexor response.

BRITISH JOURNAL OF VENEREAL DISEASES

The area of cardiac dullness was somewhat increased, the apex beat being displaced downwards and outwards. The second sound was accentuated in the aortic area. Blood pressure, 210/120.

Examination of the cerebro-spinal fluid showed one cell per cubic millimetre. Total protein, 0.04 per cent.

Nonne-Apelt and Pandy tests, weakly positive. Lange, 0000010000. Wasserman reaction, negative.

The Wassermann reaction was doubtfully positive (1.0.0.0.) in the blood. This was repeated three times with identical results.

Uranalysis results: Acid reaction; sp. gr. 1010; albumen present; many casts of various types; no blood, pus or sugar.

Urea concentration test:—

Resting specimen	.	.	1.1	per cent.
One hour after	.	.	1.0	„
				(Output 180 c.c.)
Two hours after	.	.	1.0	„
				(Output 120 c.c.)

Blood urea, 81 mg. per cent.

Lævulose curve:—

Resting blood sugar	.	.	0.150	per cent.
Half an hour after	.	.	0.162	„
One hour after	.	.	0.168	„
One and a half hours after	.	.	0.154	„

In view of the doubtful Wassermann reaction the patient was given potass. iodid. (10 grains thrice daily) and injections of a preparation of metallic bismuth, of which eight in all were given.

Four weeks after the first injection the patient began to complain of severe pain in the muscles of her right arm and later in the right calf. A week later the pains increased and spread to all four limbs. She found she had no strength in her arms or legs and was unable to stand; she also complained of severe tingling in the hands and feet. On examination the muscles were found to be exquisitely tender; there was great impairment of motor power, particularly in the distal parts of the limbs. Dorsiflexion of the ankles was impossible, but there was no wrist drop. There was no actual wasting, but the

BISMUTH POLYNEURITIS

muscles felt flabby and toneless on palpation. The biceps, triceps, supinator and ankle jerks were absent, but the knee jerks persisted. No objective loss to cotton wool or pinprick was demonstrable ; there was, however, a very definite diminution in postural sensibility and in the appreciation of a vibrating tuning fork.

There was no vomiting or diarrhoea, but anorexia was marked. No blue line was visible on the gums.

Peripheral neuritis was diagnosed and treated by the withdrawal of the bismuth injections, and by the administration of diuretics and copious fluid draughts. Improvement was rapid ; within a fortnight strength returned to the limbs ; pain and tingling disappeared ; the muscles lost their tenderness and the arm and ankle jerks became obtainable.

This case is instructive in that it demonstrates (1) the fact that peripheral neuritis may result from bismuth medication ; (2) the symptomatology of such a polyneuritis ; and (3) the risk of injecting bismuth preparations when the kidneys are damaged.

The polyneuritis is characterised clinically by :—

- (1) Great muscular pain and tenderness.
- (2) Moderate motor disability.
- (3) Little objective sensory change.
- (4) No line on the gums and no gastro-intestinal symptoms.

The symptomatology thus differs markedly from plumbism and resembles rather the picture of alcoholic or arsenical neuritis.*

For permission to publish this case, my thanks are due to Dr. Gordon Holmes, under whose care the patient was admitted to the National Hospital.

* The injection employed was a pure preparation of bismuth, and hence the possibility of contamination with arsenic scarcely arises.